BUSA333 Spring 2006 Probability Challenge Problems

Work on these before the review on Wednesday 3/8. Bring neatly written solutions (or at least as far as you can get). These will be part of your second project grade. As with any case or project, you may work in groups of up to three students.

1) A fair die is tossed. The possible outcomes are 1, 2, 3, 4, 5, and 6, each with a probability equal to 1/6. A is the event that the outcome is odd. B is the event that the outcome is even. C is the event that the outcome is less than 4. Determine P(A), P(B), P(C), P(A and B), P(A and C), P(B and C), P(A or B), P(A or C), P(B or C), P(A | B), P(A | C), P(B | C). Identify which pairs of events, if any, are independent and which are mutually exclusive.

2) If two events are independent, and each has a probability greater than zero, what can we say about the mutual exclusivity of the two events? Choose one of the following:
a) The two events must be mutually exclusive
b) The two events might be mutually exclusive
c) The two events cannot be mutually exclusive

3) What if they were ***dependent***?

4) Bob’s eight siblings in their spice (plural of spouse) will line up single file to wish him a happy birthday at his upcoming party. Val and Marie will be next to each other (as always) and their husbands, Eddie and John, will be at the end of the line horsing around. Beyond that, the rest of the group may be in any order. How many ways can these sixteen people be ordered, given those two constraints?